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Control of Parasites and Diseases of Sheep

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On the Cover

The picture shows the proper position for drenching sheep. The animal is standing quiet and relaxed, and its eyes and nose are on the same level. Drenching is recommended for control of internal parasites.

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Control of Parasites and Diseases of Sheep

By H. M. BRIGGS and K. S. HARMON, D. V. M.*

Sheep are commonly said to be relatively free from disease but quite subject to parasitic infestations. This should not discourage either a beginner or an old timer in the sheep business, because effective control measures have been worked out for nearly all parasitic diseases. Prevention is for the most part a matter of proper care.

This circular was prepared to give flock owners the information needed about various afflictions affecting sheep. Recommendations for proper care and management of farm flocks under Oklahoma conditions are published in Oklahoma Agricultural Experiment Station Circular C-130, *Sheep Management for Oklahoma Farms.*

Parasites

Internal Parasites

STOMACH WORMS.

The common stomach worm is probably the most serious parasite of sheep throughout farm flock states. It may be called Enemy Number 1 of the average farm flock. Nearly all sheep in the area, unless they have been very carefully drenched, are infested with this parasite. Evidences of heavy infestation are general lack of thriftiness, paleness of the linings of the inside of the mouth and eyes, a dead appearance to the fleece, and diarrhea. In extreme infestation, swelling is often present around the lower jaw. *Considerable damage is done by infestation not heavy enough to produce these symptoms.*

This small, thread-like worm is usually from ½ to 1-1/4 inches long and no larger in diameter than an ordinary pin. It begins its life cycle when the mature female lays eggs in the fourth stomach of the sheep. These eggs pass out with

* The material in this circular was originally written by these authors for the section on parasites and diseases of sheep in the book *Sheep and Wool* copyright 1945 by the Midwest Wool Marketing Cooperative. The Experiment Station gratefully acknowledges permission of the copyright holder to reproduce this material here with only minor editorial changes. Dr. Briggs is Animal Husbandman in charge of sheep research at the Experiment Station. Dr. Harmon at the time this material was prepared was Assistant Professor of Veterinary Medicine at the Oklahoma A. & M. College.

the feces, and after going through a resting stage the young larvae emerge and crawl upon foliage. High humidity and heat make ideal conditions for hatching the eggs, and moisture helps the young larva crawl up on the foliage. After it gets on the foliage, the young larva goes into a resting stage during which it is encased and is very resistant to the elements. Sheep eat the foliage and take the young worms back into their digestive tracts. When the worms reach the fourth stomach they mature and the cycle is repeated. Worms are spread almost entirely when the animals are on pasture. The complete life cycle takes approximately three to four weeks under ideal circumstances.

Pasture rotation is an effective means of control if sheep are moved every month and kept from a pasture for two years. But this is not practical, and drenching is usually to be recommended. Several drenches are effective against stomach worms. Probably the least expensive is copper sulfate ($CuSO_4$), commonly referred to as bluestone. A 1% solution is prepared by dissolving 4 ounces of bluestone crystals in 3 gallons of water. This is the amount required to treat 100 head of mature sheep. The dose is 4 oz. for a mature sheep, 2 ounces for a 60-pound lamb, and the dosage for in-between weights is graduated accordingly. Sheepmen often like to add 2 ounces of nicotine sulfate (Black Leaf 40) to the 3 gallons of drench, and this produces what is commonly referred to as the Cu Nic mixture. Nicotine sulfate is partially effective against tape worms as well as stomach worms.

Phenothiazine is very effective against stomach worms. In an experiment at the Oklahoma Station 99.8 percent of all mature stomach worms were killed by proper drenching with phenothiazine. It has the added advantage of being effective against all common intestinal parasites with the exception of the tape worms. Phenothiazine should be used as recommended by the manufacturer.

Nodular Worms.

Nodular worms are similar to stomach worms but infest the intestines. Infested sheep usually show the same symptoms as those caused by stomach worms. Nodular worms do their first damage by burying into the walls of the intestines

during one stage of their development. When they enter or leave the intestinal walls they allow bacteria to enter. Considerable infection results and nodules or knots are formed.

Drenching the entire flock with phenothiazine before and after the permanent pasture season seems to be an effective means of control.

TAPE WORMS.

The damage done by tape-worms is debatable. Some authorities say that some parasites do more damage than the large flat worms that infest the intestines. Those that infest the ducts cause many livers to be condemned at the slaughter house.

Pasture rotation and keeping sheep off of wet land are good preventive measures. Tape worms require secondary hosts which thrive where moisture is abundant, consequently infestation can be reduced by keeping the sheep on high dry ground and away from damp places.

Nicotine sulfate seems to be partially effective in controlling these parasites. There is no known treatment that will get all the tape worms in the intestines, or any of those that infect the ducts that connect with the pancreas or liver. In recent years certain proprietary worm treatments have used arsenic compounds as a means of keeping tape worms under control. These should, of course, be used according to the manufacturer's directions.

Sheep that are infested often will drop segments of tape worms of considerable length in their feces. General unthriftiness and diarrhea are common symptoms of heavy infestation.

LUNG WORMS.

The lung worm spends its life and lays its eggs in the lungs of sheep. The young larvae that are produced in the lungs are coughed up, swallowed, and passed out of the body in the droppings. Other characteristics of the life cycle are similar to that of the common stomach worm.

Sheep infested with lung worms cough a great deal and often have considerable diarrhea and become unthrifty. Pasture rotation and sanitation are more effective

measures of control than medical treatment. This parasite is not much of a problem where the sheep are properly managed.

HEAD GRUB.

One parasite that troubles the flock owner a great deal is the so-called head grub. This "grub" produces a very noticeable discomfort in the sheep, and consequently the sheep owner becomes quite alarmed over it. Actually, other internal parasites are far more serious in terms of sheep health, but their presence is not so obvious.

"Grub" in the head is the result of a fly that deposits a tiny grub (maggot) on the lip or in the nostril of sheep during warm weather. The mature fly is larger than the ordinary house fly, and sheep that are being bothered usually run with their noses in the dust and become quite frantic. The fly seems to trouble the sheep only during the heat of the day. The grub migrates up the noses of the sheep and locates in the sinus cavities, and the maggot matures there. The maggot is often nearly an inch long and one-third inch thick. The mature maggot naturally sets up considerable irritation and a bloody discharge may run from the nose. Just before the grub descends from the sinus of the sheep, an infected individual may show considerable evidence of discomfort; but serious permanent damage seldom results.

Treatment is difficult and should be undertaken only by skilled veterinarians. Covering the nose of the sheep with pine tar is often suggested as a remedy. The tar prevents the fly from depositing larvae for a short time, but is probably not very effective as a control measure.

External Parasites

The external parasites of sheep are comparatively easier to control than the internal parasites. Proper dipping once a year will control nearly any parasite that occurs in the average flock.

Several general precautions are useful in dipping sheep. It is well to have the sheep off their feed from 3 to 6 hours before dipping, and it is best to dip with water at air temperature. Hard water may be softened with from 1 to 4 pounds of

sal soda per 100 gallons of water. Ordinarily, it is best to delay dipping at least 3 weeks after shearing, thus giving all shearing cuts adequate chance to heal.

COMMON SHEEP TICK.

The common sheep tick is a wingless fly. It is commonly referred to as a Ked by the English and Australians. It spends its entire life on the body of the sheep and will not live very long if removed from the sheep. Its eggs are hatched in the body of the female tick and the larvae are glued to the body of the wool fiber. They emerge in from 9 to 24 days and the female is ready to lay eggs in another two weeks. Sheep with tight, greasy fleeces have fewer ticks than sheep with loose fleeces. The tick is particularly bad on the lamb crop in the spring, because they leave the ewes and go to the nursing lambs. They are a blood sucking parasite and remove considerable blood from the lamb. Ticks spread by contact and many of them will leave sheep completely in extremely hot weather, but enough will remain to start infestation the next fall.

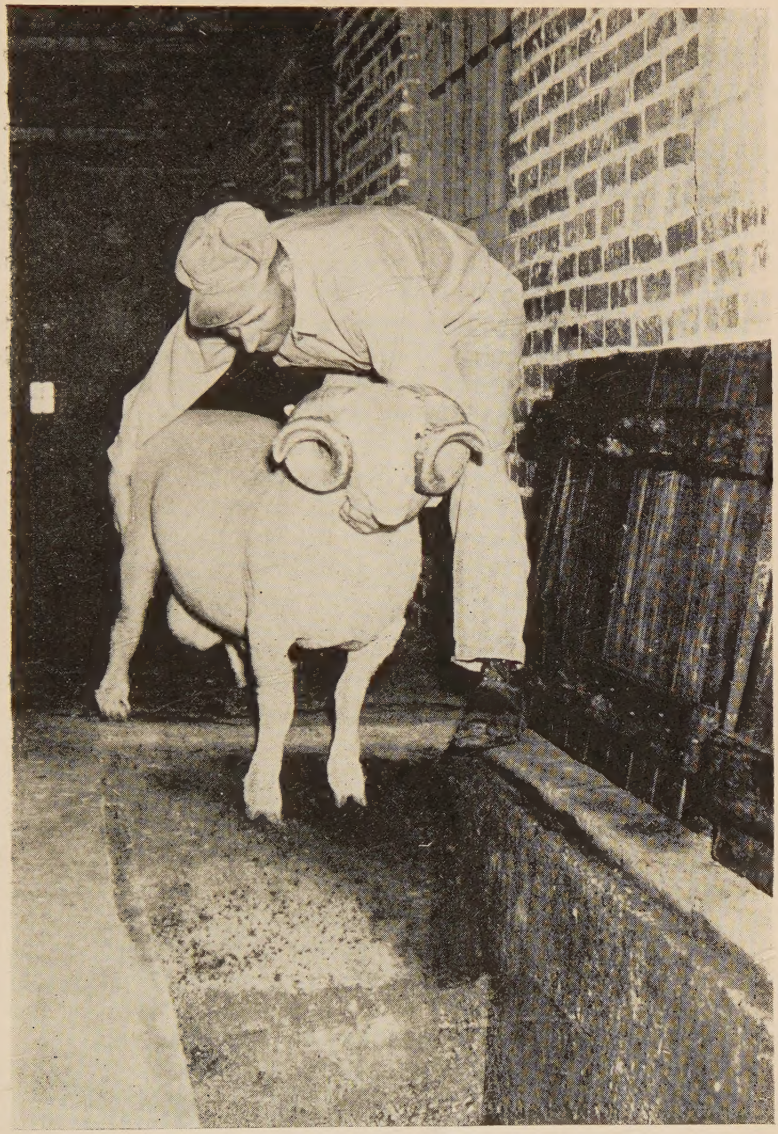
Ticks may be controlled by one dipping with some commercial sheep dips. Wettable sulfur and rotenone may also be used. Two dippings at 24-day intervals with the common coal tar dips is usually effective. All dips should be used at the strength recommended by the manufacturer.

LICE.

Sheep are infested with three kinds of lice which come under the general classification of sucking, biting, and foot lice. All have similar life cycles and are controlled by routine dippings for the more common sheep tick.

FOOT SCAB.

Foot scab is an irritation of the feet caused by a small mite that burrows in and around the tissues of the feet and legs. They are more prevalent on bare legged sheep than sheep that are wooled down to the tops of the feet. This insect may be controlled by placing the feet in a solution of commercial coal tar dipped at 10-day intervals until scratching ceases.



Dipping Controls Most External Parasites.

Proper dipping once a year will control nearly any external parasite that occurs in the average sheep flock. The animal in the picture is ready for the plunge into the sheep barn vat at Oklahoma A. & M. college. It is best to delay dipping at least 3 weeks after shearing, to allow all cuts to heal.

Sheep Scab.

Sheep scab is the most feared and by far the most harmful of the external parasites, and many states have laws that prevent the importation of sheep that have not been recently dipped for scab.

Because of the very serious nature of the scab mite the federal government quarantines and supervises the dipping of all infected flocks. If an owner suspects scab, he must contact his nearest federal or state veterinarian.

The so-called scab results from a tiny mite that burrows itself into the skin of sheep. These tiny wounds ooze and a scab is formed. The sheep that are infested are extremely uncomfortable and if caught may attempt to rub against the person holding them. The parasite that causes the infestation is a small, white mite that can be seen with the naked eye on a black background. The eggs hatch in 3 to 4 days and 8 days later the females are ready to lay their eggs. Since each female lays from 15 to 24 eggs, it has been estimated that at the end of 90 days approximately one-half million mites may have been descended from one pregnant female.

In addition to the general irritation that the sheep suffer, they lose most of their wool and also lose weight.

Wool Maggot.

During the spring of the year the breeding flocks and lambs are subject to wool maggots. These result from the common blow fly laying eggs on soiled wool, usually near the anus or vagina. The blow fly strikes in dirty wool. The young maggots are scavengers at first, but later may get into healthy tissue. Sheep suffering from wool maggots try to scratch the infested area. They rub against fences and wiggle their tails almost constantly. Maggots can result in the death of the sheep, usually by lowering their resistance to other infections.

The maggot may be killed with a coal tar dip solution and dirty wool trimmed away. Pine tar oil is effective in preventing another strike. Smear 62, recently put in use, not only kills the maggots but will prevent another strike for several days. Getting the breeding flock sheared before the hot weather will clear up most of the trouble.

Screw Worms.

Screw worms are very serious parasites on live tissue. The screw worm fly lays its eggs in a fresh wound and the larvae attach themselves head first to the live tissue of the animal. The infected wound can be identified because it seeps blood and serum. Screw worms can be most effectively controlled by brushing smear 62 over the wounds.

Diseases

Diseases Due To Improper Management

Several diseases in sheep can be termed management diseases, because good feed and proper management are useful in their prevention and treatment. They are not germ diseases and are not contagious or hereditary.

Pregnant Ewe Disease.

Pregnant ewe disease is commonly referred to as ketosis or lambing paralysis. It is decidedly more common in ewes carrying twins than in the ewes carrying single lambs. Affected ewes usually linger behind the flock for a day or two and then seem to develop a type of blindness and may even stagger. The ewe usually goes down in two or three days and assumes a rather characteristic position by lying on her breastbone and sticking her head toward her rear flank. Unless the ewe is treated or has her lambs in two or three days she will usually die. Any condition that upsets the metabolism of the ewe may be a cause. The trouble is less common in well nourished sheep that have had an ample supply of mineral and exercise than on the flocks where no attention is given in these details. The disease seems to be most prevalent when ewes have been confined for several days and have not had their usual exercise.

Drenching with black strap molasses has apparently been of benefit in some instances. Dextrose (corn syrup) solution (5 to 10 percent) is superior and is commonly used, while intravenous injections of sterile calcium gluconate are even better. It is sometimes recommended that black strap molasses be fed to the entire flock for a period of time if many cases appear in the flock.

Calcium Tetany.

Occasionally lambs or ewes may develop a lack of muscle co-ordination and show symptoms of spasm .This may result from a lack of calcium, and ample minerals should be provided in the ration.

Bloat.

Gas formation is a normal function in a healthy rumen or paunch, but gas formation in excess of the rate at which the sheep can eliminate it may result in bloat. Placing sheep on palatable feed to which they have not been accustomed may cause them to gorge on the feed and thus cause undue gas formation. In case of bloat, the animal may be given mineral oil, and massaging the abdomen will be found helpful. When the gas goes down the sheep is usually all right.

Founder.

Founder is often referred to as laminitis and may be the result of the lamb eating more feed than it can digest. Lambs that overeat on grain may become foundered. If founder is suspected, epsom salts may be given; but for the most part the lambs should be removed from the feed and then started back on feed slowly several days later. Foundered lambs are seldom economical feeders, therefore it is essential that lambs be started on full feed gradually to keep down the number of founder cases.

Goiter.

Lambs occasionally are born with goiter in certain iodine-deficient areas. Providing iodized salt for the breeding flock will prevent this conditon.

Big Head.

Sheep eating certain weeds and exposed to strong sunlight may get a severe swelling about the head and ears. Such sheep should be housed in a dark stall and fed harvested feeds until recovery.

Conditions Due To Improper Body Functions

Urinary Calculi.

Urinary Calculi is the result of small stones forming in the kidneys or in the bladder and blocking the passage of the urine

when they become lodged in the urinary passages. The cause of this formation is not definitely known. Mechanical removal, if the stones can be located, provide the only known relief to the lamb. This disease occurs only in rams and wethers, and sheep that are troubled should be sold.

HERNIA OR RUPTURE.

Hernia is not at all uncommon in sheep and may be an hereditary weakness. It is probably not wise to retain sheep with hernia as breeding stock. Expert surgery will correct this condition in sheep, but is usually too expensive.

PILES.

Piles, like hernia, are the result of an inherited weakness and can be operated on successfully by a skilled veterinarian. Ordinarily the value of the sheep will not justify the effort.

PROLAPSE OF THE VAGINA.

It is not uncommon for a ewe to have a prolapse of the vagina just before lambing. Usually the prolapse can be washed off, reinserted, and mechanically held in place by tying heavy cord strings into the fleece and then across the vaginal opening. Occasionally stitches are used to keep the vagina from turning out. Ewes with this type of prolapse are usually not bothered with the condition following lambing.

INVERTED EYELID.

Inverted eyelid occurs in baby lambs and may cause excess watering of the eyes and even temporary blindness. Turning the eyelid back out and snipping off a small portion of the loose skin just above the eye will usually correct this condition. Removing a small piece of the skin causes a puckering that will keep the eyelid drawn out and prevent further irritation of the eyeball by the eyelashes.

Bacterial Diseases

Ordinarily we are not much concerned about a rapid spread of an epidemic, because sheep are not usually bothered by contagious diseases. However, there are a variety of conditions that may result in sheep becoming infected with harmful bacteria that are commonly present on the premises.

NAVEL ILL.

It is not uncommon for lambs to be troubled with navel ill due to a bacterial infection of the navel at birth. Stiff and swollen joints may result, and death may occur from a navel infection. Treating the navel of the lamb with tincture of iodine at birth is a preventive.

TETANUS OR LOCK JAW.

Tetanus results from a specific organism entering a wound. Such an entry may occur at the time lambs are castrated or docked. There is practically no cure after the condition is noticed, and the lambs die in a typical lock-jaw condition. The best method of prevention is to disinfect wounds and keep the lambs in clean premises after they have been docked or castrated.

BLACK LEG.

Sheep may become infected with black leg but are not ordinarily bothered as much as calves. Ordinarily, sheep are not vaccinated against the disease.

HEMORRHAGIC SEPTICEMIA.

Hemorrhagic septicemia is commonly, but incorrectly, referred to as "shipping fever." The term "shipping fever" is used to cover a multitude of ills that occur in livestock. Hemorrhagic septicemia should be used only to refer to pneumonia acquired by animals weakened by shipping, adverse weather conditions, or similar causes. This pneumonia occurs in weakened lambs that are attacked by any of several very common organisms. Thousands of dollars are wasted each year by owners trying all kinds of preventives and treatments for hermorrhagic septicemia. Ordinarily, it does no good to vaccinate sick sheep, because they will be dead before any vaccination can take effect. When hermorrhagic septicemia is present in a flock, good care, proper feeding and dry housing and good nursing are of utmost importance in treatment.

WHITE SCOURS.

White scours may go through a flock of lambs and usually gets more virulent as it goes from one lamb to the other. The organism that causes the infection is picked up by the mouth. Infected lambs usually appear unthrifty and pass whitish or

gray excreta. Treating the lambs with a mixture of 2 parts castor oil and 1 part of precipitate of chalk usually is helpful in correcting the condition.

LAMB DYSENTERY.

Lamb dysentery is a highly infectious disease of the digestive tract or lambs, and its presence may kill a very large percentage of new-born lambs. Moving the ewes to clean ground, complete sanitation, and burying of dead lambs may help stop the spread.

LIP AND LEG ULCER.

Lip and leg ulcer is a virus disease that causes sores on the lips and in some cases on the legs of sheep. When the sheep have been infected once, they acquire a life immunity. When the ulcer-like sores occur on the lips of the lambs, it is well to peel off the scab and swab the lip with tincture of iodine, silver nitrate, or some other disinfectant. It is possible to vaccinate against lip and leg ulcer, but ordinarily this is not necessary. Many feeder lambs that come from Texas have been vaccinated.

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